National Institute of Environmental Health Sciences

The potential role of compost in reducing greenhouse gases

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Abstract:

The contribution of the agricultural sector to emissions of climate change gases is becoming better understood. At the same time, the potential role of the sector as a means through which to tackle climate change, widely neglected in the past, is becoming more widely acknowledged. The absorption potential of agricultural soils could contribute significantly to constraining growth in greenhouse gas emissions, while also contributing to improvements in soil quality in some areas. In addition to the measures listed above, other benefits of compost application may have some relevance. Some of these measures include replacement of chemical fertilizers (implying avoidance of greenhouse gases related to their production) reduced use of pesticides (avoiding emissions associated with their production), improved tilth and workability (less consumption of fuels). Typically, life-cycle analyses (LCAs) exhibit limitations related to assessing the effects of 'time-limited' carbon sequestration in soils. This has tended to obscure the potentially important effect of composting, in which biogenic carbon is held in soils for a period of time before the carbon is released. The paper seeks to understand these effects and offers comments on the contribution of biological treatments to tackling climate change issues. Key issues include the replacement of fertilizers, reduction of N2O emissions, and peat replacement.

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Unspecified Exposure

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Region

Other European Region: European Union

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Mitigation

Resource Type: ☑

format or standard characteristic of resource

Policy/Opinion, Research Article, Review

Timescale: ☑

time period studied

Time Scale Unspecified